AFTER FLOYD: NORTH CAROLINA PROGRESS

The devastating torrential rains of Hurricane Floyd resulted in record flooding along most rivers and streams in central and eastern North Carolina. With sustained winds around 110 miles per hour, the strong Category II hurricane made landfall on September 16, 1999, near Cape Fear, North Carolina. The vast storm dumped 20 inches of rain on some parts of eastern North Carolina, already waterlogged from the rain produced by Hurricane Dennis that swept through only days before and was later compounded by Hurricane Irene. Floyd's immense storm structure, twice the size of Hurricane Andrew, stretched 680 miles across, drenching three to four states at a time.

The storm affected some 2.1 million people. The president, in response to a request from Governor Jim Hunt, declared 66 North Carolina counties major disaster areas. Twenty-seven of the 66 disaster-declared counties faced severe flood damage, and some 30 downtowns were entirely underwater. The historic flooding brought by Hurricane Floyd turned into the worst natural disaster ever to hit North Carolina. In dollar figures, it did some $6 billion in insured and uninsured damage.

"I was simply amazed. I had never seen a flood like this before. We've never had it before in our recorded history."

- Gov. Jim Hunt

The damage was made worse by the fact that few people had flood insurance. In fact, only some 13 percent of homeowners had it. Many people labored under the misconception that their homeowner's insurance policies would cover damage from high water.

The mass evacuation of people along the eastern seaboard in anticipation of Floyd's arrival was the largest peacetime evacuation ever. By the time the storm made landfall at Cape Fear, 227 emergency shelters were open in North Carolina, housing more than 45,000 people. At the peak of the need, more than 62,000 people would stay in these shelters. Another 41,000 or more sought shelter in inland motels, with family and friends and at non-state shelters.

More than 87,500 people registered with the Federal Emergency Management Agency (FEMA) as individuals impacted by the disaster. The storm damaged more than 67,000 homes in some way, destroying some 8,000. Approximately 12,000 businesses reported some sort of loss.

More than 1.5 million homes and businesses lost power. Two weeks after the storm, nearly 8,000 still had no electricity. Most of those were considered unconnectable, because they were still submerged, or they were so severely damaged that power could never again be restored to the structure unless extensive repairs were made.

Agriculture losses exceeded $830 million. Damage to farm structures alone accounted for $280 million.

Floodwaters contaminated 2,800 wells and 14 public water systems. Additionally, 24 waste water treatment plants closed as result of the flooding.

Forty dams failed and 61 others sustained significant damage. Twenty-five were placed on the Department of Environment and Natural Resources' "must fix or breach" list as high-hazard dams.

The flood closed roads and bridges in a thousand places. The North Carolina Department of Transportation deployed more than 2,500 workers and 2,000 pieces of equipment to repair damage at 2,067 sites. More than 700 roads were damaged.

In direct response to the magnitude of the challenges, the North Carolina Division of Emergency Management and FEMA implemented flood insurance awareness and renewal campaigns, an unparalleled state floodplain mapping initiative, and a multitude of mitigation projects throughout the state.

ARE YOU ONE OF THE WISE?

- After Hurricane Floyd, the sale of flood insurance policies in North Carolina increased by 25 percent.

  Yet every year, hundreds of flood insurance policy holders let their coverage lapse, as the memory of the destruction they suffered fades with time. For more information, please call:
  1-800-427-9662

- Many of the people whose homes were flooded during Hurricane Floyd didn't know that they lived in a floodplain.

  FEMA named North Carolina the first Cooperating Technical State in September of 2000, giving it the responsibility to create new flood insurance rate maps for the entire state.

- Throughout the ages, experience has taught us that the best way to avoid becoming a disaster victim is to take protective steps before hand.

  Nearly 4,000 families have moved out of harm's way and will never again have to suffer because of damage from a flood.

FLOOD INSURANCE GROWTH

The National Flood Insurance Program (NFIP) compared the number of flood insurance policies and the amount of coverage in effect both before and after Hurricane Floyd for 15 of the North Carolina counties hardest hit by the September 1999 storm.

POLICIES IN FORCE (PIF):
PRE-FLOYD AND POST-FLOYD COMPARISON

County	PIF 9/99	PIF 5/02	Difference
Beaufort	3,737	4,335	598
Brunswick	10,358	11,738	1,380
Carteret	12,191	13,244	1,053
Craven	3,239	3,764	525
Dare	16,783	18,517	1,734
Edgecombe	805	2,730	1,925
Hyde	1,046	1,238	192
Lenoir	571	1,638	1,067
New Hanover	9,498	10,815	1,317
Onslow	2,220	4,172	1,952
Pender	3,026	2,178	-848
Pitt	782	3,067	2,285
Wake	1,526	2,110	584
Wayne	521	1,148	627
Wilson	211	635	424
TOTAL	66,514	81,329	14,815

22.27% Growth

** The latest figures available are as of 05/31/2002.*

The increasing number of flood insurance policies in force in these 15 counties is similar to the 24 percent growth rate for North Carolina as a whole. This indicates that North Carolinians across the state, not just in the areas hardest hit, learned from the losses suffered as a result of Hurricane Floyd.

FLOOD INSURANCE

AMOUNT OF FLOOD INSURANCE COVERAGE: PRE-FLOYD AND POST-FLOYD COMPARISON

County	Insurance Coverage* 9/99	Insurance Coverage* 5/02	Difference*
Beaufort	$318,394	$452,773	$134,379
Brunswick	$1,533,825	$2,010,160	$476,335
Carteret	$1,512,552	$1,860,532	$347,980
Craven	$371,734	$513,172	$141,438
Dare	$2,299,550	$2,989,715	$690,165
Edgecombe	$73,248	$310,724	$237,476
Hyde	$93,804	$118,776	$24,972
Lenoir	$32,499	$118,903	$86,404
New Hanover	$1,341,211	$1,801,405	$460,194
Onslow	$251,946	$592,037	$340,091
Pender	$397,807	$335,300	-($62,507)
Pitt	$72,939	$264,806	$191,867
Wake	$225,890	$403,866	$177,976
Wayne	$39,169	$119,668	$80,499
Wilson	$21,283	$72,880	$51,597
TOTAL	$8,585,851	$11,964,717	$3,378,866

** The figures are represented in $1,000s.*
*** The latest figures available are as of 05/02/2002.*

The growth in the amount of flood insurance coverage in the 15 selected counties is almost the same as the rest of the state (41.7%) and is higher than the national growth rate of 19.8 percent. This, too, indicates the increasing awareness across the entire state of the need for flood insurance.

39.35% Growth

POLICY RETENTION for 2001

While the net growth of the number of flood insurance policies in effect in the 15 selected counties is encouraging, statistics indicate approximately one in every eight policy holders in North Carolina are letting their policies lapse and drop from the NFIP rolls. Nationwide studies in the past show that people tend to start dropping their flood insurance coverage within two to three years after a significant flood event, as the memory of the disaster dims with time.

88% Retention

County	Policy Retention
Beaufort	88.7%
Brunswick	88.8%
Carteret	92.3%
Craven	86.6%
Dare	89.2%
Edgecombe	81.9%
Hyde	97.4%
Lenoir	86.8%
New Hanover	88.7%
Onslow	93.8%
Pender	90.2%
Pitt	87.0%
Wake	87.4%
Wayne	81.3%
Wilson	82.0%

GROWTH AND RETENTION

**The 4,464 North Carolinians
who are now on
The Group Flood Insurance Policy
as a result of Floyd (FEMA-DR-1292-NC),
which expires on December 15, 2002,
must buy a separate flood policy on their own in order to
be eligible for any future federal disaster assistance.**

Group Flood Insurance Policy

FEMA provides limited flood insurance coverage under a Group Flood Insurance Policy for the recipients of disaster assistance who receive a grant to meet essential needs caused by the disaster. The recipients of this form of individual assistance have insufficient repayment capability to be eligible for a federal disaster assistance loan. The state of North Carolina, which administered the grant program at the time of Floyd, paid the premium for the Group Flood Insurance Policy for North Carolinians who qualified.

Under the rules for the Group Flood Insurance Policy, the group policy became effective on November 15, 1999; 60 days after President Clinton issued his disaster declaration on September 16, 1999. The policy is in force for 37 months and will terminate on December 15, 2002.

Policy and coverage *growth* in North Carolina since Floyd are encouraging. The *retention rate* however, for policies needs improvement. Only 87 percent of the state's NFIP policyholders renewed their coverage in 2001. More North Carolinians need to buy flood insurance protection. Every North Carolinian who has a flood insurance policy needs to *keep* their coverage!

With time, people tend to forget the flood risk and the levels of damage in their hometown or state. Additionally, too many people think of flooding only in seasonal terms, such as during hurricane season, or that floods only occur along the coast; but the threat is continuous – floods can occur any time and almost anywhere. The approaching third anniversary of Hurricane Floyd serves as a reminder of the damage that floods can do, both along the coast and inland on the creeks and rivers; even in areas that were spared in September 1999.

Following Hurricane Floyd, the NFIP paid 12,127 of North Carolina's disaster victims $197.4 million in flood insurance claims. Those 12,127 flood victims paid their own way and did not have to rely on federal disaster relief or a federal disaster assistance loan, which they would have to repay with interest, to help them recover. (The average NFIP claim payment was $30,884.41 saving both the taxpayer and the NFIP policyholder.)

NC FLOODPLAIN MAPPING PROGRAM

North Carolina is setting the standard for the nation when it comes to updating and modernizing the state's inventory of Flood Insurance Rate Maps (FIRMs). The two year-old, statewide mapping initiative is helping to avoid the loss of life and property due to flooding by generating accurate, current, digital FIRMs. The North Carolina Floodplain Mapping Program is making it easier than ever for people to find out if their property is in a flood hazard area by posting the new maps on its state-of-the-art, Geographic Information System (GIS)-based Internet site (www.ncfloodmaps.com).

Through an agreement with the Federal Emergency Management Agency that was signed in September 2000, North Carolina took over primary responsibility from FEMA for producing and maintaining all North Carolina FIRMs. The state immediately began meeting with local officials to set priorities for new floodplain studies and obtain base map data, such as aerial photographs that would provide a backdrop of easily recognizable features and landmarks.

North Carolina also began acquiring new, highly accurate ground elevation data for the eastern half of the state. The elevation data has now been collected for approximately 26,400 square miles (54%) of the state using Light Detection and Ranging (LIDAR) sensor technology. This information will be used to accurately determine river, stream, and coastal floodplain boundaries. All of the elevation data will be available on the internet (www.ncfloodmaps.com) by this fall.

North Carolina is currently conducting flood hazard studies along approximately 10,500 stream miles. Of this total, floodprone areas along about 7,000 stream miles previously designated as "A Zones" (approximate flood hazard areas without base flood elevations for the 100-year flooding event) will be redesignated as "AE Zones" (special flood hazard areas with base flood elevations for the 100 year flooding event). This includes rivers and streams in the Tar-Pamlico River Basin, White Oak River Basin, Lumber River Basin, Neuse River Basin, and Pasquotank River Basin. (Studies for the Cape Fear River Basin are currently on hold due to funding constraints.) Communities in the White Oak River Basin began receiving preliminary FIRMs for review in January 2002. By the end of 2002, preliminary FIRMs should be released to most of the communities in the other river basins for review.

As communities receive paper copies of their preliminary maps, the digital version is posted on the North Carolina Floodplain Mapping Information System (NC FMIS). These accessible digital maps consist of overlapping GIS layers, including aerial photography, street and road names, communities, corporate and extraterritorial jurisdiction boundaries. The maps and flood hazard data can be viewed online or downloaded.

Funding has recently been obtained to combine the new FIRM information with United States Geological Survey and National Weather Service technology to develop a modern flood warning system for North Carolina. This system provides both flood forecasting and real-time inundation mapping, which will provide the notice needed to prevent the loss of life experienced during Hurricane Floyd. Final planning for a pilot program to demonstrate its capabilities is underway in the Tar-Pamlico River Basin.

While work continues in the eastern half of North Carolina, the remapping program will move on to Phase II this fall, depending upon weather conditions and availability of state and federal funding. This calls for flying LIDAR in the Chowan, Roanoke, Catawba, Yadkin, New, and Watauga river basins. Work in the Broad, French Broad, Little Tennessee, Savannah, and Hiwassee basins is scheduled to begin during fall of 2003.

MITIGATION PROJECTS

While you are in the middle of a drought, it is hard to imagine that it was just three years ago when much of Eastern North Carolina was under several feet of floodwater as the remnants of Hurricane Floyd dissipated. On September 23-24, 1999, some 6,300 square miles of the North Carolina Coastal Plain was under floodwater. As the floodwater made its way downstream to the Atlantic Ocean, it would slowly receded from one place as it overflowed into another, eventually covering some 18,000 square miles and damaging an estimated 67,000 homes.

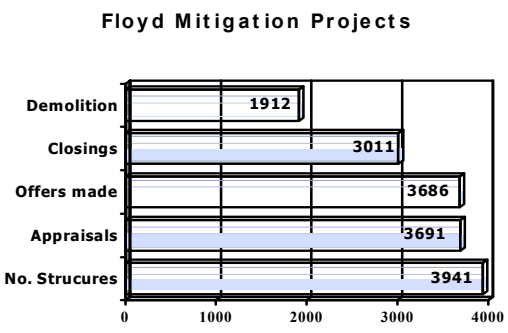
Hurricane Floyd caused substantial damage to more than 8,500 homes, many of them located within the 100-year floodplain. Many of these same homes had been damaged before, most notably by Hurricane Fran in 1996. Others damaged by Floyd were located outside the 100-year floodplain. But the floodwater didn't differentiate, damaging or destroying everything it touched.

The Hazard Mitigation Grant Program (HMGP) was created to help break the cycle of damage-rebuild-damage-rebuild so often seen in high-risk areas. In North Carolina, 75 percent of the funding for the program comes from the Federal Emergency Management Agency, with the remaining 25 percent coming from the state or a local match, which also administers the program, including setting the priorities and participation criteria. In North Carolina, approximately 4,200 elevations and acquisitions have been completed since 1996.

Through HMGP funding, North Carolina has implemented acquisitions projects throughout the state. For Hurricane Floyd the priority was to purchase those structures that were the primary place of residence, located in the 100-year flood plain, and had been substantially damaged or were environmentally uninhabitable. In excess of 4,400 structures met these criteria, with almost 4,000 of the property owners electing to sell their damaged homes at a pre-flood fair market value and move out of harm's way for good.

The purchase process is actually handled by the local (city or county) government using federal and state funds. Once the purchase is complete the local government then holds title to the property. By the end of July 2002, property purchase closing had been completed on 3,032 of these parcels.

When the title transfer is complete, the local government contracts to have any buildings on the property removed and the land is converted for use as open space so that no homes will be impacted by any future floods. By the first of August 2002, all buildings had been removed from 1,912 parcels. The remaining buildings will be removed as the sales are closed and contractors become available to complete the work.



A model acquisition program requires a thoughtful and coordinated relocation plan. Kinston officials recognized the importance of protecting the social and economic base of their community. If residents leave the community following the purchase of their homes, the community ultimately suffers by losing part of its tax base. As a result, the program was structured in a way that allowed residents to move into the same neighborhoods together, so that residents could maintain their social contacts and their children would still have the same friends in their new schools.

Because HMGP acquisitions are voluntary, residents must be interested in participating and must also understand the implications of their decisions. By using GIS as an educational and marketing tool to illustrate the acquisition plans and benefits, local officials were able to generate community support. Ninety-seven percent of the homeowners in acquired homes relocated to housing in the City of Kinston, resulting in minimal impact to the tax base. This is a testament to the community-based approach and the GIS technology that the City of Kinston used in developing their mitigation strategy.

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